

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: :  
Soon Mo Hwang et al. : Confirmation No. 5120  
U.S. Patent Application No. 10/599,816 : Group Art Unit: 3743  
Filed: June 13, 2007 : Examiner: LAUX, David J.

For: Cyclonic Plasma Pyrolysis/Vitrification System

**PRE APPEAL BRIEF REQUEST FOR REVIEW**

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

It is respectfully submitted that the Examiner has erred in rejecting:

- 1) Claims 1-5 & 7-8 under 35 U.S.C. 103(a) as being unpatentable over US 6,155,182 to Tsangaris et al. in view of US 5280,757 to Carter et al. and further in view of US 3,357,383 to Golovanov et al.; and
- 2) claim 6 under 35 U.S.C. 103(a) as being unpatentable over Tsangaris et al. in view of Carter et al. and Golovanov et al. and further in view of US 5,640,913 to Nyyssonen; are respectfully traversed.

**Cyclonic flow**

There is no cyclonic flow either disclosed or suggested in the primary reference to Tsangaris et al. or Carter et al. The Examiner's sketch showing its purported formation is not founded on the disclosure that can be gleaned from the cited art.

In the Advisory action the Examiner states that although the outer wall of the refractory vessel is circular (about a vertical axis), the separator wall is shown perpendicular to the plasma torch in the horizontal angle. As shown in Fig. 1A, the Examiner alleges that the plasma torch could (arguedo) be angled slightly steeper to more directly engage the incoming waste (as denoted by auger (15)). This, the Examiner purports (without any disclosure to support the same), would cause the gases to bank off the wall at an angle inducing a cyclonic rotation about an essentially horizontal axis (as shown in the marked-up version of Fig. 1A in the previous final rejection).

Turbulent flow would very likely be produced but not cyclonic flow.

Indeed, the Examiner, to his detriment, purports that '182 specifically discloses angling the plasma torch to optimize the processing effect (Col. 6, lines 54-57), and (especially in light of the teaching of horizontal cyclonic gas flow of '383) a turbulent gas flow ensuring adequate mixing of the gases and ash would have been well within the ability of one having ordinary skill in the art. Turbulent gas flow – yes, but not cyclonic. The turbulence that is produced would be disruptive and interfere with the formation of any cyclonic movement.

If one looks to Fig. 1B of Tsangaris et al. it will be understood that the reaction chamber of Tsangaris et al. is cylindrical with a vertical axis and that the bottom of this chamber is tub-like with partitioning member 17b acting as a raised dam that partially divides the lower portion into two semi-circular portions. This arrangement is such that the molten slag, rather than flowing over the dam will preferably flow around it as shown by the arrows in Fig. 1B.

It is submitted that if any particular continuous gas flow were to be apt to occur, it would, via Coanda effect (for example), be more likely about a vertical axis (due to the circular side walls) of the chamber and not about a horizontal one as claimed.

Further, the assumption that a gas rotation of the nature illustrated by the Examiner would exist at any time is untenable in light of the shape of the reaction chamber, the lip (no numeral) that extends into the path of the flow and the disclosure which describes the manner in which the plasma torch can be circulated/moved about. That is to say, there is nothing in this

reference to suggest that the plasma torch will stay in any position for a time sufficient to possibly induce a rotating gas flow and not be moved so as to be directed directly downward toward the flat section 17a of the processing platform 17.

In the Advisory action the Examiner also rebuts the Applicant argument that the separator wall is upwardly extending wall instead of a downwardly extending wall. The Examiner purports that depending upon where on the wall one starts, the walls depicted in applicant's Fig. 3 or '182: Fig. 1 could be either upwardly extending or downwardly extending (for example, the wall in '182 could be viewed as starting at the top end and extending down to the base OR extending from the base up to the terminal end).

Is the Applicant to believe that the hypothetical person of ordinary skill is going to use this kind of analysis? That is to say up can be down depending on where you start? Under § 102 this quasi rational approach may be possible but not under §103 – common sense is necessary according to the Supreme Court - *KSR Mil Co. v. Teleflex, Inc.*, 127 S. Ct. 1727, 1739 (2007).

The Examiner continues then to take the position that applicant has not specified in the claims that the wall extend from a certain point, and that he is of the opinion that the disclosure of '182 is well within the realm of the broadest reasonable interpretation. Appellant submits this is possible only so long as common sense is abandoned and the specification is ignored. The yardstick is not “the broadest reasonable interpretation” but the “broadest reasonable interpretation consistent with the specification” – see MPEP 2111.

The citation of the Golovanov et al. reference does nothing to resolve the problems that are encountered with Tsangaris et al. and Carter et al. and the sketched arrangements presented by the Examiner. Indeed, if a horizontal cyclonic flow were to be deemed necessary the hypothetical person of ordinary skill would just drop Tsangaris et al. and Carter et al. and turn to Golovanov et al.

#### Gas Burner

The rejection admits that the Tsangaris et al. reference fails to disclose the formation of a

cyclonic flow, however, it also clearly omits to acknowledge that the Tsangaris et al. reference also fails to disclose the gas burner which is used in conjunction with the plasma torch.

The rejection attempts to introduce this extra undisclosed burner based on the very brief disclosure of a preheating torch in the Carter et al. reference - see column 4, lines 15-17, of Carter et al.

In the advisory action, it is stated that it would have been obvious for one having ordinary skill in the art at the time of invention, when attempting to start up the plasma reactor of Tsangaris et al. ('182), to turn to prior knowledge in the art, such as the disclosure of Carter et al. '757, to use an auxiliary gas burner to preheat the reaction vessel to the temperature at which a plasma torch can be operated reliably.

This appears to suggest the Tsangaris et al. ('182) arrangement is partially inoperative for its intended purpose and would need the extra burner so that the plasma torch could be operated reliably. That is to say, Tsangaris et al. neither discloses nor suggests such a need and must be deemed reliably operable as disclosed.

It is further submitted that the hypothetical person of ordinary skill would not draw the conclusion reached by Examiner based on the disclosure of Tsangaris et al. and Carter et al. taken as a whole.

It is submitted the gas burner (recited in claim 1) is so briefly disclosed in Carter et al. as to fail to provide any disclosure that would actually lead the hypothetical person of ordinary skill to consider adding this to the Tsangaris et al. arrangement. That is to say, the Tsangaris et al. reference fails to suggest that the plasma torch is insufficient in and of itself, to heat the slag/material into a molten state from the very outset. Preheating is not disclosed as being a shortcoming and as such there is no reason that the hypothetical person or ordinary skill would be inclined to consider the plasma torch of Tsangaris et al. inoperative to the degree of being insufficient to provide the necessary initial heating, that the transfer of teachings alleged to be obvious would be considered.

Nyyssonen is not seen as adding anything worthwhile to the above discussed mix.

The final rejection based on the above, is untenable and should be reversed.

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including any extension of time fees, to Deposit Account 07-1337 and please credit any excess fees to such deposit account.

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Respectfully submitted,  
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